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(54) Title: **PEPTIDE-BASED METHOD FOR MONITORING GENE EXPRESSION IN A HOST CELL**

(57) Abstract: The present invention relates a method for monitoring the expression level of a gene in a host cell by modulating the activity of a regulatory biomolecule, comprising the steps of: (a) transforming a cell expressing a regulatory biomolecule with a nucleic acid molecule comprising an open reading frame encoding an interaction partner of said biomolecule in expressible form, wherein (i) said regulatory biomolecule is either a nucleic acid binding molecule that effects its regulatory activity upon binding or an allosterically controlled ribonucleic acid molecule; and (ii) the interaction partner of the biomolecule is encoded by a nucleic acid molecule comprising: (1) a nucleic acid sequence encoding a tagged (poly)peptide, (2) a nucleic acid sequence encoding a tagged (poly)peptide or a peptide tag, a selectable marker gene and additional nucleotide sequences for site specific, in-frame integration of said nucleic acid molecule into the coding sequence of at least one host (poly)peptide of interest, wherein said tag comprises the interacting residues of the interaction partner, or (3) a nucleic acid sequence encoding a peptide tag.

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